

REMARKS / DISCUSSION OF ISSUES

Claims 1-42 are pending in the application; claims 39-42 are newly added.

The Office action rejects claims 1-10, 16-27, and 33 under 35 U.S.C. 103(a) over Apostolides et al. (USP 6,829,226, hereinafter Apostolides) in view of Das et al. (USPA 2003/0087605, hereinafter Das). The applicants respectfully traverse this rejection.

The combination of Apostolides and Das fails to disclose controlling a time of transmission of reports such that first reports are transmitted at a predetermined sequence of times and, in response to an interruption in a power control loop process or transmitting of the reports, controlling a time of transmission of second reports at times that are not coincident with the predetermined times, as claimed in claim 1, upon which claims 2-17 depend. Independent claim 18, upon which claims 19-33 depend, includes similar features.

The Office action acknowledges that Apostolides does not teach controlling the time of transmission based on an interruption in a power control loop or an interruption of transmitting the reports, and relies on Das for this teaching.

The Office action asserts that Das teaches controlling a time of transmission of second reports at times that are not coincident with the predetermined times of first reports in response to an interruption in transmitting the reports at paragraph 0017, lines 7-24. The applicants respectfully disagree with this assertion. Das does not teach changing the time of reports in response to an interruption in transmitting the reports.

Das teaches changing the time of reports based on whether transmissions are received from a base station. When transmissions are being received, the mobile station sends reports at a first rate, and when transmissions are not being received, the mobile station sends reports at a second, lower rate, to conserve resources at the mobile station when the base station is not transmitting to the mobile station. The rate at which the reports are sent is in response solely to transmissions or lack thereof from the base station; it is not in response to an interruption in transmitting the reports, as asserted in the Office action.

In response to the applicants' prior remarks, the Office action presents a circular argument: the rate change causes an interruption, and this interruption causes the rate change:

"Das teaches that when the base station ends the transmission of data to the mobile station, the channel quality resumes to be reported to the base station every two 2 slot [sic]. This constitutes an interruption in the channel quality information from every 2 slot to every slot, because when the base station is sending data, the reporting is at every 2 slots is changed to every slot." (Office action, page 2, last line - page 3, line 5.)

As the above cite from the Office action clearly indicates, the rate is changed based solely on "when the base station ends the transmission" and "when the base station is sending data".

Because Das fails to disclose changing from a predetermined sequence of time of reports in response to an interruption in a power control loop process or transmitting of the reports, as relied upon in this rejection, the applicants respectfully maintain that the rejection of claims 1-10, 16-27, and 33 under 35 U.S.C. 103(a) over Apostolides in view of Das is unfounded, and should be withdrawn.

The Office action rejects claims 11-14 and 28-31 under 35 U.S.C. 103(a) over Apostolides in view of Das and further in view of Seo et al. (USPA 2003/0123396, hereinafter Seo). The applicants respectfully traverse this rejection.

The Office action asserts that Seo teaches terminating a period of sending reports in response to an indication of convergence of the power control loop at paragraph 0038, lines 1-7). This assertion is incorrect. Seo discloses user equipment (UE) that determines a downlink channel quality index (CQI) for use in a transmit power control (TPC) process. At the cited text, Seo states:

"The UE periodically reports the determined CQI information of Table 2 to the Node B. However, when the UE is located in a soft handover (SHO) region, a condition of the downlink channel is poor, and in addition, a TPC command transmitted over an uplink DPCCH fails to correctly take a condition of the downlink channel into consideration." (Seo [0038], lines 1-7.)

As is clearly evident, the cited text merely states that when the user equipment is in the soft handover region, the transmit power command will not correctly take a condition of the downlink channel into consideration. This statement forms the basis for Seo's subsequent disclosure, which teaches a method for remedying this condition. As is clearly evident, this statement does not disclose an indication of convergence of a power control loop, as asserted in the Office action.

The Office action also asserts that Seo teaches that the indication of convergence is a signal received from the base station at paragraph 0040, lines 1-3. This assertion is also incorrect. At the cited text, Seo states:

"That is, the UE, when it is located in the SHO region, transmits CQI information to the Node B every TTI in order to correctly report a condition of the HS-DSCH." (Seo [0040], lines 1-3.)

As is clearly evident, the cited text merely states that the user equipment transmits the CQI information at every HSDPA Transmission Time Interval (TTI); it does not disclose an indication of convergence, and does not disclose that such an indication is received from the base station.

The Office action also asserts that Seo teaches that a predetermined criterion for indicating convergence is a reversal of the sign of at least one power control command at paragraph 0068, lines 1-8. This assertion is also incorrect. At the cited text, Seo discloses a part of the solution to the aforementioned problem of poor reception in the handover region:

"First, when a UE (User Equipment) is located in a soft handover (SHO) region, a downlink channel condition is poor, so the UE transmits CQI (Channel Quality Indicator) information every TTI (Transmission Time Interval). The reason for transmitting the CQI information every TTI is because a TPC (Transmit Power Control) command transmitted over an uplink DPCCCH (Dedicated Physical Control Channel) cannot take into account a condition of the downlink channel." (Seo [0068], lines 1-8.)

As is clearly evident, the cited text does not disclose a criterion for indicating convergence, and does not disclose that such a criterion includes a reversal of sign.

Because Seo does not disclose the elements of claims 11-14 and 28-31 as asserted in the Office action, the applicants respectfully maintain that the rejection of claims 11-14 and 28-31 under 35 U.S.C. 103(a) over Apostolides in view of Das and further in view of Seo is unfounded, and should be withdrawn.

The Office action rejects claims 15 and 32 under 35 U.S.C. 103(a) over Apostolides in view of Das and further in view of Cudak et al. (USPA 2005/0289256, hereinafter Cudak). The applicants respectfully traverse this rejection.

The Office action asserts that Cudak teaches suspending the generation of reports during the interruption at paragraph 0053, lines 1-5. This is incorrect. Cudak teaches against sending regular reports, and teaches only sending reports in response to a request from the base station:

"In accordance with the preferred embodiment of the present invention, a base station will request the transmission of quality information from a particular remote stations only when data is queued to be transmitted to the remote stations." (Cudak [0013], lines 3-7.)

The request from Cudak's base station includes a 'timeout' parameter that specifies how often the remote station should repeat the transmission to the base station in the event that the mobile station does not receive an acknowledgement of receipt of the report. At the text cited in the Office action, Cudak states:

"It is possible to combine the first and third embodiments such that the TIMEOUT field is used in conjunction with the PERSISTENCE field to provide alternative criteria for the remote station to stop the transmission of channel quality reports. For example if the TIMEOUT field is set to N, the remote station would continue channel quality reports for no more than N repetitions as in a third embodiment." (Cudak [0053], lines 1-7.)

As is clearly evident, at the cited text, Cudak does not disclose an interruption in a scheduled sending of reports, and does not teach suspending generation of reports during such an interruption, as asserted in the Office action. Accordingly, the applicants respectfully maintain that the rejection of claims 15 and 32 under 35 U.S.C. 103(a) over Apostolides in view of Das and further in view of Cudak is unfounded, and should be withdrawn.

The Office action rejects claims 34-36 and 38 under 35 U.S.C. 103(a) over Apostolides in view of Das and further in view of Cheng et al. (USPA 2004/0246917, hereinafter Cheng). The applicants respectfully traverse this rejection.

In this rejection, the Office action relies on the rejection of claim 1 over the combination of Apostolides and Das as a basis for this rejection. Cheng fails to cure this deficiency, and is cited only to support the assertion that the prior art teaches a base station that schedules an interruption in the power control loop process or the reports received from the mobile station. As noted above, the combination of Apostolides and Das fails to teach or suggest the elements of claim 1. Accordingly, the applicants respectfully maintain that the rejection of claim 34 is unfounded for at least the same reasons as detailed above with regard to claim 1.

Further, Cheng does not teach that the base station schedules an interruption in the power control loop or the reports from the mobile station. The Office action asserts that Cheng's delay process corresponds to scheduling an interruption. This assertion is incorrect. To the contrary, Cheng specifically teaches that the reports from the remote stations occur during the defined cell switch delay (CSD) periods:

"The mobile station may transmit a quality indicator to only the first serving cell during the cell switch delay which is used by the first serving cell to control at least one of a power level of transmission or selection of modulation and coding type used by the forward link to the mobile station during the cell switch delay." (Cheng [0011], lines 22-28.)

As the cited text clearly indicates, the cell switch delay is used for sending the power control reports from the mobile station; it is not used to schedule an interruption in the power control process, as asserted in the Office action.

Because the combination of Apostolides, Das, and Cheng fails to disclose the elements of claim 34, upon which claims 36-38 depend, the applicants respectfully maintain that the rejection of claims 34-36 and 38 under 35 U.S.C. 103(a) over Apostolides in view of Das and further in view of Cheng is unfounded, and should be withdrawn.

The Office action rejects claim 37 under 35 U.S.C. 103(a) over Apostolides in view of Das, in view of Cheng, and further in view of Seo. The applicants respectfully traverse this rejection.

In this rejection, the Office action asserts that the combination of Apostolides, Das, and Cheng discloses the elements of claim 34, upon which claim 37 depends, and asserts that Seo teaches determining an end time in response to an indication of convergence of the power control loop process at paragraph 0038, lines 1-7 (cited above). The applicants respectfully disagree with this assertion.

As noted above, the combination of Apostolides, Das, and Cheng fails to disclose the elements of claim 34, and Seo does not disclose an indication of convergence of the power control loop process. Accordingly, the applicants respectfully maintain that the rejection of claim 37 under 35 U.S.C. 103(a) over Apostolides in view of Das, in view of Cheng, and further in view of Seo is unfounded, and should be withdrawn.

In view of the foregoing, the applicants respectfully request that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,

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